

## INTRODUCTION

The present invention relates to a target object having a receiving device, in which a target subject may be received. Target objects of this type are known in various embodiments for various sporting competitions.

For example, goals for football or handball games are known which stand directly on the ground at the edge of a playing field and have an essentially cuboid receiving device, open toward the playing field, having stabilizing struts running along the edges of the receiving device. Furthermore, basket-like target objects for basketball games, which may also be supported at the edge of a playing field using a rod-shaped support element above head level, for example, are also known. US-A-5727700 and US-A-5564575 describe devices for displaying and storing balloons.

The known target objects, because of their shaping, which is tailored to the particular ball game, are not suitable for simple sporting competitions using gas-filled balloons, as they are oriented in the framework of advertising events, preferably as an attraction point for customers or accompanying persons in childhood. Competitions of this type are - lacking suitable target objects - oriented in the form of distance flight competitions.

### OBJECT OF THE INVENTION

The present invention is based on the object of allowing a sporting competition using gas-filled balloons and, in addition, providing a widely visible advertisement carrier.

### ACHIEVEMENT OF THE OBJECT

On the basis of the known target objects, it is suggested according to the present invention that the target object be suspendable above a starting surface in such a way that the receiving device has at least one opening pointing toward the starting surface, through which a balloon, which rises as the target subject from the starting surface and is filled with lifting gas, may be guided into the receiving device. For this purpose, helium is particularly used as the lifting gas. In particular, a balloon made of biologically degradable film ("bioballoon") may be used.

The target object according to the present invention allows a novel sporting competition using gas-filled balloons as the target subjects in such a way that balloons which rise due to the lift of the gas from the starting surface and reach the receiving device through the opening trigger a prize. The estimation of the air movement between the starting surface and the opening in the receiving device and, in addition, the typically non-uniform movement of a balloon ("bobbing") represent a special demand on the skill of the players in this case.

In addition, the target object according to the present invention is outstandingly suitable as an advertising carrier, particularly in the framework of events both in the open air and in high spaces (for example, in convention halls). The lateral surfaces of the receiving device offer the possibility of attaching flat advertising messages which then "float" significantly above the ground during operation of the target device. In addition, the balloons rising to the target object in the framework of the sporting competition described irresistibly induce the observer to look again and again at this target object - and the advertising message attached thereto.

The target object according to the present invention may have nearly any arbitrary shape suitable for the intended sporting or advertising purpose in this case. For example, the target object may be designed in the form of a round disk and have multiple circular, segmented, concentrically positioned openings like a dartboard, a hit with a balloon being valued with different point values as a function of the segment hit.

In a preferred embodiment, the target object according to the present invention has a registration element, using which the balloon guided in the receiving device may be registered. In particular, a registration element may be attached to the opening of the receiving device. If the target object is additionally equipped with an individual identification element, the target object which has reached the receiving device may be identified individually using a registration element. By transmitting the registration and possibly the individual identification of the target object which has reached the receiving device to an evaluation device positioned on the starting surface using a transmission element, the score may be ascertained on the basis of the points achieved.

In particular, barcodes or RFID labels come into consideration as identification elements which may be implemented cost-effectively, which may be glued or printed on the target object. Corresponding registration elements ("scanners") based on laser technology are widely distributed in the field of automatic cash registers and are commercially available cost-effectively in manifold embodiment. A cable connection is preferably guided through a holding cable to transmit the registered data to an evaluation device. Alternatively, a radio link to the evaluation device may also be established using the transmission element.

In a preferred embodiment, the target object according to the present invention has a registration element, using which the balloon guided into the receiving device may be marked. The registration element may particularly comprises a paint spraying device, which marks a balloon guided past the registration element with a paint sprayer upon a pulse. In particular in connection with the collection (described above) of the balloons which have reached the receiving device, the number of balloons may be ascertained easily on the basis of the markings, even from the remains of destroyed balloons.

In a preferred embodiment, the receiving device of the target object according to the present invention is advantageously implemented as cuboid. The cuboid shape is especially suitable for attaching flat advertising carriers.

A target object according to the present invention preferably has a rigid stabilization device, using which the shape of the receiving device may be stabilized. The susceptibility of the receiving device to deformation under wind pressure is thus reduced and a uniform impression of the target object is ensured for the sporting competition.

Such a stabilization device preferably has rods connected like scissors, using which a rectangular delimitation element of the shape of the receiving device may be stabilized and which may be laid together parallel - and therefore in a space-saving way - to transport the target object. The receiving device may be constructed especially simply using straight rods. Through the scissor-like connection, the number of required additional connection points is reduced and the handling is simplified and, in addition, the weight is reduced.

In an especially advantageous embodiment of the target object according to the present invention, the delimitation element may be suspended with the spatial shape of the receiving device in the pre-mounted stabilization device. A net and flat advertising carrier may, for example, be suspended modularly in hooks attached to the stabilization device. The mounting and dismounting of the target object according to the present invention is thus designed especially simply.

In an especially preferred embodiment, the target object according to the present invention has a lift element which may be filled with a carrier gas having a lower density than air in such a way that the target object may be raised into a position above the starting surface supported by the lift of the carrier gas. The weight of the target object according to the present invention to be supported by a support construction anchored on the ground is thus significantly reduced. The support construction may thus be implemented as correspondingly simpler and lighter and therefore more cost-effectively and easier to transport.

Such a balloon-like lift element additionally offers the advantage of nearly unrestricted three-dimensional shaping, which may be tailored to the particular advertising purpose,

which is particularly advantageous from an advertising viewpoint. For example, the lift element may be designed in the form of an overdimensioned cow to advertise for a dairy operation, in the form of an advertised product - such as a tire for a tire manufacturer - or even in the form of an identification, a logo, or inscription used as a name, company name, or trademark.

A target object according to the present invention advantageously has a holding device, using which the target object may be held on the ground. The position of the target object in relation to the starting surface may thus be fixed.

In particular, such a holding device has at least one anchor cable, using which the target object may be anchored on the ground. The use of cables for holders only loaded with tension in turn allows a design of the target object according to the present invention which is optimized in regard to weight, cost, and transportability. If the lift of a lift element is exploited to an extent such that the target object according to the present invention is lifted as a whole by the carrier gas, the holding device may even be constructed exclusively from cables.

In a preferred embodiment, the holding device of a target object according to the present invention may have at least one rod-shaped support element, using which the target object may be supported on the ground. Using such a support element, a target object, which is not (or not completely) lifted by the lift of a gas filling, may be held in a position above the starting surface.

A rod-shaped support element allows, in addition to support which may be loaded by tension and pressure, a certain torsion loadability in the direction of the rod axis - at least within limits. Through this multiaxial loadability of a support element, the number of required support elements of the holding device may be kept low, through which the handling and the transport of the target object according to the present invention are in turn made easier.

A rod-shaped support element may advantageously be made of fiber-reinforced plastic. A support element made of fiber-reinforced plastic (plastics reinforced with glass, carbon, and ceramic fibers are known) is - particularly in comparison to a support element made of metal (aluminum or steel) - significantly lighter and, in addition, more

flexible, with the same carrying capacity. For outdoor applications, the lower susceptibility to lightning is also significant as a safety aspect.

Such a flexible rod-shaped support element sags in an arc on its free end during mounting of a receiving device, so that the slope of the support element on this free end is reduced. The receiving device may then - again in comparison to a rigid support element - be mounted significantly closer to the free end without danger of collisions. In order to reinforce this effect more, the support element may be implemented as weaker (i.e., particularly thinner) toward the free end. Bracing of the receiving device using anchor cables on the ground may also be used in a targeted way in order to achieve a defined sag of the support element.

In addition, a rod-shaped support element may preferably be able to be mounted in segments. Plug-in or folding connections between the segments are especially simple to manufacture and assemble, and do not require any special embodiment of the segments themselves - in contrast to telescoping support elements. The individual segments may then - for the purpose of the embodiment cited above, which becomes weaker toward the free end - be designed in such a way that the diameter of each individual segment falls continuously or each segment has a smaller diameter than the preceding - which is significantly easier and therefore more cost-effective to produce.

A rod-shaped support element may preferably be received in a receiving element, on which a motor vehicle may be parked for weighting. The rod-shaped support element is already particularly suitable for a transportable embodiment because of the properties and variations described above. Since the transport is typically executed using a motor vehicle - or at least a motor vehicle is available at the usage location - the intrinsic weight of this motor vehicle may be used to fix a receiving element on the ground. The receiving element itself may in turn be implemented as small, light, and cost-effective.

Particularly for use in areas which do not allow access by a motor vehicle, or where a visible motor vehicle is to be avoided, other weight elements - such as vessels filled with water - may be used alternatively. In order to allow variable uses, the receiving element may preferably be constructed modularly in such a way that a larger positioning plate is connectable to the main element. While a wheel of the motor vehicle may be

parked on the main element, as described above, the larger positioning plate has the positioning area required for receiving the particular number of weight elements.

In an advantageous embodiment of such a receiving element, an angle between the support element and the horizontal is particularly settable using an adjustment element. For pre-mounting of the support element on the receiving element, this angle may then be set flat, particularly parallel to the horizontal. To attach an object to be lifted - such as a target object according to the present invention, an illumination object, a sunshade, or advertising carrier - the free end may easily be raised to head level by increasing this angle, for example. Subsequently, the angle may be increased up into the vertical - or even further if a flexible support element is used - to transfer the object into the desired target position.

In the framework of such a receiving element, the support element and the adjustment element are preferably supported in a shared receiving cage. This receiving cage absorbs the bearing forces of the support element and, in addition, of the adjustment element, but only conducts their vertical components - corresponding to the weight of the support element having the object suspended thereon (and of the adjustment element) - but not their mutually canceling horizontal components into the foundation or into to a floor plate of the receiving element.

Such a receiving element preferably prevents the removal of the motor vehicle in the state mounted with the support element, i.e., fulfills the function of a "driving barrier". Unintended removal of the motor vehicle in the mounted state of the target object according to the present invention is thus effectively avoided and its operational safety is elevated.

Alternatively to such a ground-bound receiving element, a target object according to the present invention may also be mounted on a mobile lifting crane or a lifting stage or - for indoor application - may be mounted on a hall roof.

### EXEMPLARY EMBODIMENT

The present invention will be explained in the following for exemplary purposes on the basis of the figures of the drawing.

- Figure 1 shows a first target object according to the present invention,  
Figure 2a shows the receiving device of this target object and  
Figure 2b shows the stabilizing device of this receiving device,  
Figure 3a shows an alternative receiving device, and  
Figure 3b shows the stabilizing device of the alternative receiving device,  
Figure 4a shows the receiving element of the first target object in a top view, and  
Figure 4b shows this receiving element in a side view.  
Figure 5 shows a second target object according to the present invention.

The first target object 1 shown in Figure 1 has a receiving device 2, which is suspended on a holding device 4 using a holding cable 3 in such a way that its bottom 7, which points toward the starting surface 5 on the ground 6, has a distance 8 thereto of 6.5 m. The holding device 4 comprises a rod-shaped element 9 made of fiberglass-reinforced plastic, which is received on the ground 6 in a receiving element 10. A motor vehicle 11 is parked on the receiving element 10.

The support element 9 is fixed at an angle 13 of up to 90° to the starting surface 5 in the mounted position 12 of the target object 1 shown in Figure 1. Due to the weight of the receiving device 2 suspended on the free end 14, the support element 9 has an arc shape, so that the free end 14 is oriented essentially parallel to the starting surface 5.

In addition, a second position 15 of the support element 9 is shown in Figure 1, in which it is received in the receiving element 10 parallel to the starting surface 5. The support element 9, which is constructed in a way not shown in greater detail here as a "dismountable mast" made of four tubular segments of 3 m length each, is pre-mounted in this position 15:

The first segment has an external diameter of 53 mm and a wall thickness of 8 mm, the second has a wall thickness of 4 mm at the same external diameter, the third again has a wall thickness of 4 mm at an external diameter of 42 mm, and the fourth segment has an



external diameter of 28 mm and a wall thickness of 3.5 mm. The segments are each connected via corresponding sleeves which compensates for the different dimensions. The receiving device 2 is then suspended on the free end 14 of the pre-mounted support element 9 and raised up by being moved into the mounted position 12.

Starting from the receiving element 10, with a motor vehicle 11 assumed here for exemplary purposes, the use of the target object 1 according to the present invention requires a free length 16 of 4 m and a free length 17 of 11.5 m in the opposite direction for the pre-mounting of support element 9 and receiving device 2. In the mounted state, the target object 1 requires a free height 18 of 9 m. To illustrate the size ratios, a person 19 is shown standing on the starting surface 5 with a gas-filled balloon 20.

Figure 2a shows the receiving device 2 of the target object 1 in detail. The receiving device 2 has an opening 21 pointing downward in the direction of the starting surface 5 in the mounted position 12 and is suspended on the holding device 4 using the holding cable 3.

The receiving device 2 essentially comprises a net 22 and a rigid stabilization device 23, illustrated singly once again in Figure 2b, as well as two rectangular film elements 24. The net 22 and the film elements 24 are hooked using steel rings (not shown) onto hooks (also not shown) on the stabilizing device 23 in the mounted state of the receiving device 2 shown in Figure 2a. The net 22 delimits the receiving device 2 through a cover element 25 which closes it on top and by four side walls 26. The film elements 24 are printed as advertising carriers in a way which is not shown, stretched on a light stretcher frame (not shown) and suspended on the stabilizing device 23 using hooks (also not shown).

The stabilizing device 23 has six rods 28 which are each connected in pairs to one another in a scissor shape at a centrally positioned joint 27. The net is reinforced using two cables 29 at the cover element 25. On the bottom, the stabilizing device 23 is stretched out using two fiberglass rods 30.

To transport the receiving device 2, first the film elements 24 are removed from the stabilizing device 23, the net 22 is unhooked, and then the rods 28 are pivoted around the particular joint 27 in such a way that they lie parallel to one another. The film elements 24, net 22, and the stabilizing device 23 are laid together in a space-saving

way in a transport box (not shown), so that the receiving device 2 is distinguished overall by a minimal space requirement.

The alternative cuboid receiving device 31 shown in Figures 3a and 3b also has an opening 32 which points downward in the mounted state in the direction of the starting surface 5 (not shown here) and may in turn be suspended using a holding cable 33 on a holding device (not shown).

The receiving device 31 again essentially comprises a net 34 and two rectangular film elements 35. Rings 36 are incorporated in the film elements 35, which engage on carabiners (not shown) attached to the net 34 in the mounted state of the receiving device 31 according to Figure 3a. The net 34 again forms a cover element 37 which closes the receiving device 31 on top and, in addition, the two front walls 38 of the receiving device 31. The film elements 35 form the side walls 39 of the receiving device 31. The stabilizing device 40 of the alternative receiving device 31 essentially corresponds to the stabilizing device 23 according to Figures 2a and 2b. In contrast to these, the net 34 and the film 35 enclose the stabilizing device 40, however, and are not suspended therein.

The receiving element 10, shown in detail in Figures 4a and 4b, has a stable metallic baseplate 41, which is also used as a positioning area for the tires 42 of the motor vehicle 11. The baseplate 41 is fixed on the ground 6 by the contact pressure of the motor vehicle 11. The baseplate 41 is implemented in a way not shown in greater detail as a trough which imitates the shape of the tire 42, into which the tire 42 is moved via a ramp. The receiving element 10 thus simultaneously fulfills the function of a "driving barrier". The position of the tire 42 is permanently predefined and the risk of incorrect usage of the receiving element 10 is minimized. Alternatively to a motor vehicle 11, of course, any arbitrary sufficiently heavy object may be used to fix the baseplate 41.

A receiving cage 43 is attached to the baseplate 41, which receives two rotatably mounted shafts 45, 46, running perpendicularly to the driving direction of the motor vehicle 11, on its front ends 44, and therefore distributes the force onto the floor plate over a large area. A receiving tube for the support element 9 is attached to the first shaft 45. This is dimensioned sufficiently long to provide the required hold to the lowermost segment of the support element 9, implemented as a dismountable mast, which is

subjected to the highest torques. To hold a fiberglass mast, which is to hold a weight of 3 kg, the receiving tube 47 must have a length of at least 80 cm.

A hydraulic cylinder 50, which is supported on the second shaft 46, is attached to the upper end 48 of the receiving tube 47 at a support point 49. By adjusting the hydraulic cylinder 50, different angles 13 of the support element 9 may be set continuously. The load may thus be mounted easily on the support element 9 when it is raised only slightly above the ground 6 and subsequently lifted to the desired height using the hydraulic cylinder 50.

The second shaft 46 is positioned somewhat lower than the first shaft 45. The receiving tube 47 may thus be transferred into a horizontal position for pre-mounting of the support element 9.

The relief screw (not shown) of the hydraulic cylinder 50 is secured from unauthorized or incorrect release by a closing device. In addition, the maximum opening of the relief screw is limited.

A vertically standing side wall 51 having a guide device 44, which laterally supports and guides the receiving tube 47, is also welded to the baseplate 41.

The second target object 53 shown in Figure 5 again has a receiving device 54, a lift element 55, and a holding device 56. The cuboid receiving device 54 is delimited on the bottom toward a starting surface (not shown) using a film 57 and is open on top. The film 57 has thirteen circular openings 58, through which a balloon 59, which is filled with helium as a carrier gas, may be guided into the receiving device 54.

The lift element 55 is produced closed in a hose shape having a box-shaped cross-section from a solid, non-stretchable film and is also filled with helium as a carrier gas. The inner wall 60 of the lift element 55 laterally delimits the receiving device 54. A registration element 61 is attached to the inner wall 60 of the lift element 55, using which a balloon 59 penetrating through the openings 58 into the receiving device 54 may be registered. The holding device 56 comprises four cables 62, which are anchored to the starting surface in a way not shown in greater detail. The target object 53 is suspended over the starting surface using the holding device 56.

LIST OF REFERENCE NUMBERS

1	target object
2	receiving device
3	holding cable
4	holding device
5	starting surface
6	ground
7	bottom
8	distance
9	support element
10	receiving element
11	motor vehicle
12	mounted position
13	angle
14	free end
15	second position
16	free length
17	free length
18	free height
19	person
20	balloon
21	opening
22	net
23	stabilizing device
24	film element
25	cover element
26	side wall
27	joint
28	rod
29	cable
30	fiberglass rod
31	receiving device
32	opening
33	holding cable
34	net
35	film element
36	ring
37	cover element
38	front wall
39	side wall
40	stabilization device
41	baseplate
42	tire
43	receiving cage
44	front end

45	shaft
46	shaft
47	receiving tube
48	upper end
49	support point
50	hydraulic cylinder
51	side wall
52	guide device
53	target object
54	receiving device
55	lift element
56	holding device
57	film
58	opening
59	balloon
60	wall
61	registration element
62	cable